



## PATENT APPLICATION

### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No: Q64995

Atsushi OOHASHI, et al.

Appln. No.: 09/888,656

Group Art Unit: 2834

Confirmation No.: 9112

Examiner: Julio C. GONZALEZ

Filed: June 26, 2001

For: STATOR FOR A DYNAMO-ELECTRIC MACHINE AND METHOD OF  
MANUFACTURING THE SAME

#### SUBMISSION OF APPEAL BRIEF

#### MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of \$500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37  
U.S. Application No. 09/888,656

**I. REAL PARTY IN INTEREST**

The real party in interest in this appeal is Mitsubishi Denki Kabushiki Kaisha. Assignment of the application was submitted in U.S. Patent and Trademark Office on June 26, 2001, and recorded on the same date at Reel 011946, Frame 0930.

**II. RELATED APPEALS AND INTERFERENCES**

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

### **III. STATUS OF CLAIMS**

Claims 1-13 are all of the claims pending in the application.<sup>1</sup> Claims 6-13 are withdrawn from consideration as being directed to a non-elected invention. Pending claims 1-5 are rejected, and are the subject of this appeal. All of the claims are set forth in the attached Appendix.

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<sup>1</sup> Although the June 29, 2005 Office Action lists claim 15 as pending in the application, the August 5, 2004 Amendment which added claim 15 was not entered as indicated in the September 3, 2004 Advisory Action. Further, the November 3, 2005 Amendment (which was filed along with a Request for Continued Examination and in replacement of August 5, 2004 Amendment) did not include claim 15.

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**IV. STATUS OF AMENDMENTS**

No amendments were requested subsequent to the Office Action of June 29, 2005.

**V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

The claimed invention is directed to “[a] stator for a dynamo-electric machine.”

Independent claim 1 recites:

a stator core having a plurality of slots; and  
a stator winding installed in said slots, said stator winding comprising a plurality of conductors including end portions joined to each other by a metal to form joint portions, wherein said metal is interposed between said end portions of said conductors and has a melting point which is lower than a melting point of said conductors.

As shown in Figures 1 and 2 (illustrating a first embodiment of the present invention), the conductors 33 forming the stator winding are joined to each other at end portions 33a. An insert metal 33f, having a lower melting point than that of the conductors 33, is interposed between the end portions 33a of the conductors 33 and melted to form a joint portion 33e in which the end portions 33a are joined together. Since the insert metal 33f has a lower melting point than that of the conductors 33, an amount of heating during joining of the conductors may be reduced. Further, since the temperature rise in the conductors may be reduced, it is possible to prevent damage to an insulating coating of the conductors.<sup>2</sup>

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<sup>2</sup> Specification at page 8, fourth full paragraph through page 9, third full paragraph.

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

A. Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase et al. (U.S. Patent No. 6,181,043; hereafter “Kusase”) in view of Aversten (U.S. Patent No. 2,711,798).

B. Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Aversten and Baines (U.S. Patent No. 4,705,972).

C. Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Aversten, Baines and Seki et al. (U.S. Patent No. 5,698,929).

D. Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Aversten, Baines and “ordinary skill in the art”.



## **VII. ARGUMENT**

### **A. Rejection of claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase and Aversten**

It is respectfully submitted that claim 1 would not have been rendered obvious in view of the Examiner's propose combination of Kusase and Aversten. In particular, Appellant respectfully submits that one of ordinary skill in the art would not have been motivated to modify the stator Kusase based on the teachings of Aversten (or the any of other cited references) to produce the claimed invention.

As shown in Figures 13-16, Kusase discloses a stator winding wherein end portions 433d of abutting copper conductor segments are coated at a portion 433f which is ball-shaped (i.e., a liquid drop, a raindrop, or a flat ball) and has a smooth roundish surface. The connected portion 433f covers the edge and side surfaces of end portions 433d, thereby covering all sharp corner edges. The portion 433f is formed by dipping the abutting end portions 433d in a tank 440 of melted solder 430 so that melted solder 430 is coated on the end portions 433d.<sup>3</sup> The solder is not interposed between the abutting end portions 433d. Since the end portions are already abutting before being dipped, the solder coating simply commonly coats pained end portions 433d.

Aversten is directed to metal stud or pin adapted to be attached to a metallic member.<sup>4</sup> As shown in Figs. 1-6 of Aversten, a piece of solder 9 is inserted in a terminal recess 7 of a brass

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<sup>3</sup> Kusase at column 5, line 64 - column 6, line 14.

<sup>4</sup> Aversten at column 1, lines 15-20.

pin 3 so that the pin 3 may be attached a metallic member by applying an electric current to the pin 3 in order to melt the solder 9.<sup>5</sup>

As the Examiner correctly concedes, Kusase does not disclose a stator winding comprising a plurality of conductors including end portions joined to each other by a metal interposed between the end portions.<sup>6</sup> In view of this deficiency, the Examiner cites Aversten for allegedly disclosing “that it is well known in the art to interpose melted metal such as silver between metallic members (column 2, lines 60-68).”<sup>7</sup> Further, the Examiner asserts that “[i]t would have been obvious to ... design a stator winding for a generator as disclosed by Kusase et al. and to modify [Kusase’s] invention by interposing a molten metal with a lower melting point between two metallic members for the purpose of avoiding melting the metallic members and avoiding oxidizing the melted metal as disclosed by Aversten.”<sup>8</sup>

Appellant respectfully submits that one of ordinary skill in the art would not have been motivated to modify the connection (joint) portions of Kusase so that the metal joining the end portions of the conductors is interposed between the end portions based on the teachings of Aversten (or the other cited references). In particular, Appellant submits that Kusase teaches away from this feature of the present invention, and such modification would impermissibly change the principle of operation of Kusase’s connection portions. That is, the stated objective of Kusase is to eliminate the sharp edges of the joined end portions of the conductor segments because the sharp edges may cause concentration of mechanical stress and electrochemical

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<sup>5</sup> Aversten at column 1, 47 - column 2, line 9.

<sup>6</sup> June 29, 2005 Office Action at page 2.

<sup>7</sup> June 29, 2005 Office Action at pages 2 and 3.

stress, and facilitate accumulation of dust or foreign particles.<sup>2</sup> Thus, modifying the stator winding of Kusase to join the end portions of the conductor segments by inserting a piece of solder between the end portions and melting the solder, instead of dipping the conductor segments in a tank of molten solder so as to form a ball-shaped cover over the outer surfaces and edges of the conductor segments, would completely defeat the stated objectives of Kusase's teachings and change the principle of operation of the disclosed structure of the connection portions. However, as set forth in MPEP 2143.01, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Further, Appellant respectfully submits that the Examiner's alleged motivation for modifying Kusase based on the teachings of Aversten is flawed. Kusase's method of joining the end portions of the conductor segments (i.e., dipping the end portions in a tank of melted solder) already produces a connected portion which "avoid[s] melting the metallic members and avoid[s] oxidizing the melted metal." Accordingly, one skilled in the art would not be motivated to change the structure of Kusase's stator winding when that winding already possesses the benefits of the proposed modification. Therefore, since the Examiner's sole reasoning for modifying Kusase's connection of the conductor segments based on the teachings of Aversten is to accomplish something that is already present in the Kusase reference, Appellant respectfully

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<sup>2</sup> June 29, 2005 Office Action at page 3.

<sup>2</sup> See Kusase at col. 1, lines 28-50; col. 3, lines 58-62; and col. 5, line 64 - col. 6, line 14.

submits the Examiner has not provided a convincing line of reasoning of why one skilled in the art would have found the combination of the teachings of the cited references obvious.<sup>10</sup>

In response to Appellant arguments for patentability, the Examiner asserts that “anyone with ordinary skill in the art would [have] soldered two metal pieces (windings) by interposing solder in between the windings (metal pieces).”<sup>11</sup> Further, the Examiner asserts that:

[i]t is well known in the art to [interpose solder] in between two metals pieces using a metal with a lower melting point, as taught by Aversten (column 2, lines 62-65). Kusase et al teaches that metal windings can be soldered and the [solder] must have a lower melting point than the metal of the [solder] (column 6, lines 12, 13).<sup>12</sup>

However, Appellant respectfully submits that the mere fact that Aversten discloses attaching a brass pin to a metallic member by melting solder inserted in a terminal recess of the brass pin does not provide the requisite motivation for one of ordinary skill in the art to modify Kusase to produce the claimed invention. Moreover, the Examiner’s assertion that “anyone with ordinary skill in the art would [have] soldered two metal pieces (windings) by interposing solder in between the windings (metal pieces)” is not supported by the prior art of record (i.e., the Examiner has presumably been unable to locate any prior art reference which teaches or suggests joining end portions of winding conductors as required by the claimed invention). Further, Appellant respectfully submits that the teachings of Aversten are not even related or relevant to

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<sup>10</sup> “To support the conclusion that the claimed invention is directed to obvious subject matter, either references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the reference.” *Ex parte Clapp* 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

<sup>11</sup> June 29, 2005 Office Action at page 7.

<sup>12</sup> June 29, 2005 Office Action at page 6.

the formation of an alternator stator winding, such that one of ordinary skill in the art of alternators would not have looked to Aversten for teachings applicable to Kusase.<sup>13</sup>

In view of the above, Appellant respectfully submits that claims 1-5 should be allowable because one of ordinary skill in the art would not have been motivated to combine and modify the cited references to produce the claimed invention.

**B. Rejection of claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Aversten and Baines**

Appellant respectfully submits that Baines does make up for the above noted deficiencies of Kusase and Aversten. Accordingly, Appellant respectfully submits claim 2 should be allowable over the cited references at least by virtue of its dependency on claim 1.

**C. Rejection of claims 4 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Aversten, Baines and Seki**

Appellant respectfully submits that Baines and Seki do make up for the above noted deficiencies of Kusase and Aversten. Accordingly, Appellant respectfully submits claims 4 and 5 should be allowable over the cited references at least by virtue of their dependency on claim 1.

**D. Rejection of claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Aversten, Baines and “ordinary skill in the art”**

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<sup>13</sup> “In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ 2d 1443, 1445 (Fed. Cir. 1992).

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Appellant respectfully submits that Baines and “ordinary skill in the art” does make up for the above noted deficiencies of Kusase and Aversten. Accordingly, Appellant respectfully submits claim 3 should be allowable over the cited references at least by virtue of its dependency on claim 1.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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**23373**

CUSTOMER NUMBER

Date: November 22, 2005

Attorney Docket No.: Q64995

**CLAIMS APPENDIX**

**CLAIMS 1-13 AND 15 ON APPEAL:**

1. (Previously Presented) A stator for a dynamo-electric machine comprising:  
  
a stator core having a plurality of slots; and  
  
a stator winding installed in said slots, said stator winding comprising a plurality of  
conductors including end portions joined to each other by a metal to form joint portions, wherein  
said metal is interposed between said end portions of said conductors and has a melting point  
which is lower than a melting point of said conductors.
2. (Previously Presented) A stator for a dynamo-electric machine according to claim 1,  
wherein said metal comprises an alloy of a material of said conductors and an additive metal.
3. (Previously Presented) A stator for a dynamo-electric machine according to claim 2,  
wherein said additive metal is a Cu--P alloy.
4. (Previously Presented) A stator for a dynamo-electric machine according to claim 2,  
wherein said additive metal comprises Ag or an Ag alloy.
5. (Previously Presented) A stator for a dynamo-electric machine according to claim 2,  
wherein said additive metal comprises Sn or an Sn alloy.
6. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine  
comprising,  
  
in a stator comprising a stator core having a plurality of slots, and a stator winding  
installed in said slots and comprising a plurality of conductors joint end portions thereof joined  
to each other,

an insert metal positioning process for placing an insert metal of a lower melting point than that of said conductors between said joint end portions of said conductors, and

after heating a vicinity of said joint end portions to a temperature at which said insert metal melts and said joint end portions do not melt and said insert metal is melted, a joining process for solidifying said insert metal and joining said joint end portions by ending said heating.

7. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine comprising,

in a stator comprising a stator core having a plurality slots, and a stator winding installed in said slots and comprising a plurality of conductors joint end portions thereof joined to each other,

an insert metal positioning process for placing an insert metal of a lower melting point than that of said conductors between said joint end portions of said conductors, and

after heating a vicinity of said joint end portions to a temperature at which said insert metal melts and melt alloying conductor end portions and said insert metal, a joining process for solidifying said molten alloy and joining said joint end portions by ending said heating.

8. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine according to claim 6 wherein:

pairs of said joint end portions to be joined align in a row of two (2) or more sets in a radial direction, and said insert metal is not provided between adjacent sets of said joint end portions.



9. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine according to claim 6 wherein:

pairs of said joint end portions to be joined align in a row of a plurality of sets in a circumferential direction, and said insert metal provided between each said joint end portion is connected in a circumferential direction.

10. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine according to claim 9 wherein:

a cross sectional area of a connecting portion of said insert metal is smaller than a cross sectional area of a portion between said joint end portions.

11. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine according to claim 6 wherein:

said vicinity of said joint end portions is heated with a non-contact heat source in said joining process.

12. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine according to claim 9 wherein:

said joining process is resistance heating in which an electrode is contacted to said joint end portions and a current is conducted, two (2) or more sets of said joint end portions aligned in a radial direction being sandwiched together by two (2) electrodes disposed at an inner diameter side and an outer diameter side and heated.

13. (Withdrawn) A method for manufacturing a stator for a dynamo-electric machine according to claim 12 wherein:

said two (2) electrodes disposed at an inner diameter side and an outer diameter side are each of a roller shape and heat, while rolling, an inner side and outer side of joint end portion groups aligned in a row of a plurality of sets in a circumferential direction.

14. (Canceled) A stator for a dynamo-electric machine according to claim 1, wherein said joint portions have a continuous planar surface where said end portions are joined by said metal.

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**EVIDENCE APPENDIX:**

There has been no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other similar evidence.

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**RELATED PROCEEDINGS APPENDIX**

There are no related proceedings.